

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,955,278 B2
APPLICATION NO. : 10/742899
DATED : October 18, 2005
INVENTOR(S) : Willy Lorscheidt

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It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

1. A dispenser for dispensing a paste-like product, comprising:

(a) a generally cylindrical hollow container (1) having a vertical longitudinal axis (X) and upper and lower ends, said container including intermediate said ends a transverse wall (10) that defines in said container a lower chamber (10a) for receiving the paste-like product, and an upper delivery chamber (100) having a cylindrical wall defined on an inner sleeve portion (13) of said container, said lower chamber containing a vertically displaceable follower piston (22), said transverse wall containing a discharge opening (11) containing valve means (20) that permit the flow of a variable volume of the paste-like product from said lower chamber to said upper delivery chamber when the pressure of said lower chamber exceeds that of said upper chamber;

(b) a generally cylindrical main headpiece (3) arranged above said transverse wall for vertical displacement relative to said container, said headpiece having upper and lower ends, said lower end containing an internal chamber having a top wall (35), said internal chamber having an inner cylindrical side wall that defines bushing means (31), said headpiece containing at said upper end a laterally extending product discharge channel (32) in communication with said internal chamber;

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(c) a generally cylindrical vertically arranged delivery piston (5) arranged for vertical sliding movement relative to said container, said piston having an upper end (50) that extends within said headpiece internal chamber and terminates in an upper end wall (54), said piston having a lower end (52) that is in sliding engagement with said delivery chamber cylindrical wall, said piston containing a vertical longitudinal delivery channel (50a) having a lower end containing an inlet opening (53) in communication with said delivery chamber, said delivery piston upper end containing at least one radial outlet opening (58) in communication with said longitudinal delivery channel; and

(d) spring means (7) biasing said headpiece upwardly toward a first position relative to said container;

(e) said delivery piston having a first position relative to said container such that when said main headpiece is in said first position, the upper end of said delivery piston is spaced by a given axial distance (a) from said main headpiece upper wall, and said delivery piston outlet opening is closed by an upper first surface portion (31b) of said bushing means;

(f) said main headpiece being longitudinally displaceable downwardly relative to said container and said piston toward a second position in which said headpiece top wall engages said piston upper wall, and said bushing means first surface portion is displaced to an open position relative to said delivery piston outlet opening;

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(g) said headpiece being downwardly displaceable from said second position toward a third position relative to said container, thereby causing said piston to be displaced by said headpiece to a second position relative to said container, whereby the pasty-like product is pumped from said delivery chamber to said product discharge channel via said piston longitudinal discharge channel and said piston outlet opening.

2. The dispenser according to claim 1, characterized in that the headpiece bushing means includes a lower second bushing surface portion (31a) which guides the delivery piston in a longitudinally displaceable manner and which comprises at least one guide surface cooperating with the circumferential surface of the delivery piston.

3. The dispenser according to claim 1, characterized in that the headpiece (3) and the delivery piston have provided thereon entraining means (34, 57) by which the delivery piston is entrained after manual operation during resetting of the headpiece (3) into the initial first position.

4. The dispenser according to claim 3, characterized in that said entraining means includes an entraining shoulder (67) which cooperates with an entraining rim (34) formed on the delivery piston.

5. The dispenser according to claim 4, characterized in that the entraining shoulder (34) is provided at the end side on the bushing means (31) at the transition to the discharge channel (32), and the entraining rim (57) is provided in the end portion of the delivery shaft (50) at the front side.

6. The dispenser according to claim 1, characterized in that the delivery piston (51) projects radially outwardly to define an annular contact surface (51a), and that the guide

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bushing means (31) has a pressure end surface (33) that is arranged in the initial position at said given axial distance relative to the annular contact surface (51a) and is positioned by axial displacement of the headpiece (3) toward the container (1) on the annular contact surface (51a).

7. The dispenser according to claim 1, characterized in that the inner wall of the delivery chamber (100) is formed by the inner sleeve portion (13) of the container (1) adjacent the headpiece (3).

8. A dispenser for dispensing a paste-like product, comprising:

(a) a generally cylindrical hollow container (1) having a vertical longitudinal axis (X) and upper and lower ends, said container including intermediate said ends a transverse wall (10) that defines in said container a lower chamber (10a) for receiving the paste-like product, and an upper delivery chamber (100) having a cylindrical wall defined on an inner sleeve portion (13) of said container, said lower chamber containing a vertically displaceable follower piston (22), said transverse wall containing a discharge opening (11) containing valve means (20) that permit the flow of a variable volume of the paste-like product from said lower chamber to said upper delivery chamber when the pressure of said lower chamber exceeds that of said upper delivery chamber;

(b) a generally cylindrical main headpiece (3) arranged above said transverse wall for vertical displacement relative to said container, said headpiece having upper and lower ends, said lower end containing an internal chamber having a top wall (35), said internal chamber having an inner cylindrical side wall that defines bushing means (31), said headpiece containing at said upper end a laterally extending product discharge channel (32) in communication with said internal chamber;

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(c) a generally cylindrical vertically arranged delivery piston (5) arranged for vertical sliding movement relative to said container, said piston having an upper end (50) that extends within said headpiece internal chamber and terminates in an upper end wall (54), said piston having a lower end (52) that is in sliding engagement with said delivery chamber cylindrical wall, said piston containing a vertical longitudinal delivery channel (50a) having a lower end containing an inlet opening (53) in communication with said delivery chamber, said delivery piston upper end containing at least one radial outlet opening (58) in communication with said longitudinal delivery channel;

(d) spring means (7) biasing said headpiece upwardly toward a first position relative to said container;

(e) said delivery piston having a first position relative to said container such that when said main headpiece is in said first position, the upper end of said delivery piston is spaced by a given axial distance (a) from said main headpiece upper wall, and said delivery piston outlet opening is closed by an upper first surface portion (31b) of said bushing means;

(f) said main headpiece being longitudinally displaceable downwardly relative to said container and said piston toward a second position in which said headpiece top wall engages said piston upper wall, and said bushing means first surface portion is displaced to an open position relative to said delivery piston outlet opening;

(g) said headpiece being downwardly displaceable from said second position toward a third position relative to said container, thereby causing said piston to be displaced by said headpiece to a second position relative to said container, whereby the pasty-like product is pumped from said delivery chamber to said product discharge channel via

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said piston longitudinal discharge channel and said piston outlet opening, and

(h) a generally cylindrical mating headpiece (4) connected with said container for guiding said main headpiece, said mating member having an outer holding cylindrical portion (41) arranged concentrically about said container inner sleeve portion, and an inner tubular guide portion (42) arranged concentrically within said sleeve portion for guiding the sliding displacement of the headpiece (3).

9. The dispenser according to claim 8, characterized in that the end of the guide portion (42) at the delivery chamber cylindrical wall comprises a delivery piston stop (42a) for the delivery piston (5).

10. The dispenser according to claim 8, characterized in that the holding cylinder (41) is provided with an annular shoulder (44) at the bottom side which forms a contact surface for a coil spring holding the headpiece in the initial position under bias and is put on the front side of the container (1).

11. The dispenser according to claim 8, characterized in that the mating headpiece (4) comprises at least one stop (46a) for defining the axial displacement movement of the headpiece (3) and is formed together with the headpiece (3) as a prefabricated dispenser component and is fastened at the front side to the container (1).

12. The dispenser according to claim 11, characterized in that the dispenser component is locked with the container (1) via locking means (47; 17) formed on the mating headpiece (4) and the front side of the container (1).

13. The dispenser according to claim 1, characterized in that the headpiece (3) is

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longitudinally displaceable such that the headpiece (10) can be brought by manual operation from the initial position first by a first axial distance (a) for contact with the delivery piston with simultaneous exposure of the delivery channel outlet opening (58) in the discharge channel (32) into a central position (M) and the headpiece (3) can then be brought with a progressive axial displacement with entrainment of the delivery piston (51) from the central position (M) into a discharge end position (V) in which the delivery chamber (100) has reached a minimum volume by displacement of the delivery piston (51).

14. The dispenser according to claim 1, characterized by a closure member (60) which is fixed to the headpiece and by which a product discharge opening (39) of the discharge channel (32) can be closed.

15. The dispenser according to claim 14, characterized in the product discharge opening (39) is formed as a ring around a closure mandrel (32a) arranged in the discharge channel, and that the closure member (60) has an annularly formed sealing lip which can sealingly be placed on the closure mandrel.

16. The dispenser according to claim 14, characterized in that the closure member (60) is made from a flexible plastic material, preferably from a thermoplastic elastomer.

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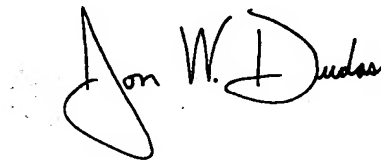
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17. The dispenser according to claim 14, characterized in that the closure member (60) is integral with a coating (61) formed at least at the front side on the outside of the headpiece (3).

Signed and Sealed this

Twelfth Day of September, 2006

A handwritten signature in black ink, appearing to read "Jon W. Dudas". The signature is stylized with a large, looped initial "J" and a distinct "D" at the end.

JON W. DUDAS
Director of the United States Patent and Trademark Office